

Role of gap junctions in embryonic and somatic stem cells.

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Scientific Abstract:

Stem cells provide an invaluable tool to develop cell replacement therapies for a range of serious disorders caused by cell damage or degeneration. Much research in the field is focused on the identification of signals that either maintain stem cell pluripotency or direct their differentiation. Understanding how stem cells communicate within their microenvironment is essential to achieve their therapeutic potentials. Gap junctional intercellular communication (GJIC) has been described in embryonic stem cells (ES cells) and various somatic stem cells. GJIC has been implicated in regulating different biological events in many stem cells, including cell proliferation, differentiation and apoptosis. This review summarizes the current understanding of gap junctions in both embryonic and somatic stem cells, as well as their potential role in growth control and cellular differentiation.

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